

**REMARKS**

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 1, 2, 11 and 12 are being amended. Claim 21 is a new claim.

This amendment changes and adds claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claims remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-21 are now pending in this application.

**Claim Rejections under 35 U.S.C. § 103**

In the Office Action, claims 1-3 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Andersin et al., Soft and Safe Admission Control in Cellular Networks, IEEE/ACM Transactions on Networking ("Andersin"), in view of U.S. Patent Application Publication No. 2004/0209624 ("Rune"). Claim 4 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Andersin in view of Rune and further in view of Korhonen, Introduction to 3G communications, Norwood: Artech House, 2001 ("Korhonen"). Claims 6 and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Andersin in view of Rune and further in view of U.S. Patent No. 6,775,233 ("Kumaran"). Claims 8-10 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Andersin in view of Rune and further in view of U.S. Patent Application Publication No. 2002/0193118 ("Jain").

Claims 11-14 were rejected under 35 U.S.C. § 102(e) as being unpatentable over Rune in view of Andersin. (*For the purposes of this reply, Applicants assume that the claims 11-14 were rejected under 35 U.S.C. § 103.*) Claim 15 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Rune in view of Andersin. Claims 16 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Rune in view of Andersin and further in view of Kumaran. Claims 18 and 19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Rune in view of Jain.

In response, without agreeing or acquiescing to the rejection, Applicants amend claims 1, 2, 11 and 12 to further define the invention. Further, the rejection is respectfully traversed below and the Applicants submit that claims 1-21 are allowable for at least the following reasons.

Applicants rely on M.P.E.P. § 2143, which states that to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation in the prior art to modify the reference. Second, there must be a reasonable expectation of success. Third, the prior art must teach or suggest all the claim limitations.

Applicants respectfully submit that the references cited by the Examiner do not teach or suggest all the limitations of independent claims 1 and 11 as amended. Further, Applicants submit that there is no suggestion or motivation in the prior art to modify the cited references.

Claim 1 recites a control device for a wireless communications network having a plurality of base stations and a plurality of mobiles. The control device includes a calculator of quantities related to attenuations measured between mobiles and base stations, and/or to the signal to interference and noise ratio threshold and a decision device with regard to the processing of new candidate mobiles. The decision device and calculator operate together according to a predefined mechanism. For each mobile served by the base station and for each new candidate mobile to the base station the mechanism includes a load calculation function capable of calculating the load induced by said mobile to the base station, as a sole function of the quantities output by the calculator, and an evaluation of a load condition associated to the base station, as a function of the loads calculated for the mobiles served by the base station and candidates to the base station, the load condition representing the feasibility of the power allocation to the mobiles by the base station.

Claim 11 is directed toward a control method for a wireless communications network having a plurality of base stations and a plurality of mobiles. For at least one given base station, the method calculates a load for each mobile served by the base station and for each new candidate mobile from quantities related to attenuations measured between mobiles and base stations and/or to the signal to interference and noise ratio threshold. Thus, the load calculation and evaluation is performed for each base station in the network according to a decentralized approach. Further, according to the claimed invention, the load calculation

does not depend on the transmit power of the mobiles. In addition, the load calculation may be performed for the mobiles that are served as well as for the mobiles that are seeking to be served. The claimed method evaluates a working condition representing the feasibility of power allocation to the new mobiles by the base station. Then, the method determines how to treat the new candidate mobiles.

The claimed features of the invention result in a control device based on a decentralized power allocation principle. The known load condition for each base station is evaluated independently. In addition, the claimed invention acquires a new load condition, based on specific parameters, that is adapted to be evaluated for each base station independently. Accordingly, the claimed invention is capable of processing each base station independently from the other base stations in order to rapidly provide a load indicator for each base station that is accurate and does not fluctuate.

In the Office Action, the Examiner correctly states that Andersin does not disclose “a decision device jointly with the calculator according to a predefined mechanism, for deciding whether or not a new candidate mobile can be processed in said network, characterised in that the said predefined mechanism comprises, for each base station to be controlled by said control device: for each mobile served by said base station and for each new candidate mobile to said base station, a load calculation function capable of calculating the load induced by said mobile to said base station, as a sole function of the quantities output by said calculator, and an evaluation of a load condition associated to said base station, as a function of the loads calculated for the mobiles served by said base station and candidates to said base station, said load condition representing the feasibility of the power allocation to said mobiles by said base station.”

However, the Examiner relies on Rune to cure the deficiencies of Andersin. Applicants respectfully disagree.

Rune discloses a load control algorithm which compares an uplink load to a threshold using a centralized approach. (See ¶¶ 0008, 0043 and 0045.) One objective of Rune is to allow a serving RCN to exchange information related to the load contribution of all mobiles for which it is the serving RCN with all the cells, controlled by another RCN, that are affected by the uplink transmissions of those mobiles. The uplink load ( $\overline{L}_i$ ), given by equations (8)

and (6) in Rune, clearly depend on the path losses and on the Carrier to Interference Ratio (CIR). Thus, the uplink load ( $\bar{L}_i$ ) depends on all the mobiles of the network, independent of their serving station. Rune considers the plurality of base stations in the network as a whole and evaluates the overall load condition. Thus, unlike the claimed invention, according to the centralize approach taught in Rune, each base station cannot be processed independently of the others.

In contrast, as set forth in independent claims 1 and 11 a load condition is evaluated for a given base station, and only depends on the load induced by mobiles that are either already being served by the base station or potential candidates of the base station. The claimed calculated load condition does not depend on other mobiles in the network that are served by other base stations. As stated above, this decentralized approach is far more accurate than known approaches.

In the Office Action, the Examiner asserted that claims 1 and 11 were directed to a special case analogous to a special case in Rune where only one base station is considered. (See Final Office Action at p. 3 an 10.) In view of the amendments made to claims 1 and 11, Applicant submits that the invention considers a network comprising a plurality of base stations communicating with mobiles. In such a network comprising several base stations, the claimed invention makes it possible to evaluate a load condition for each base station individually, so as to control congestion and admission of new candidate mobiles to a given base station. On the contrary, Rune fails to disclose, teach or suggest a load condition evaluated for each base station in a network comprising a plurality of base stations, and provides only an overall uplink load calculated by accounting for all of the mobiles in the network.

Accordingly, Applicant respectfully requests that the rejection be withdrawn and amended claims 1 and 11 be allowed. Further, Korhonen, Kumaran and Jain fail to cure the deficiencies of Andersin. Therefore, claims 2-10 and 12-21 that depend from one of claims 1 or 12 are allowable for at least that reasons set forth above.

In addition, Applicants note that there is no evidence in the prior art that suggests or provides motivation for the combination of Andersin and Rune. In fact, based on the

conclusions drawn in Andersin, a person of ordinary skill in the art would have been deterred from combining Rune with Andersin since Andersin disclosed two vastly different algorithms and their technical drawbacks.

For example, one skilled in the art, having read Andersin would be motivated to use an IAC algorithm. (See Andersin at p. 256 “[t]he N-IAC algorithms are subject to errors of type I and II. These errors are evaluated for several case studies, and demonstrate that these algorithms are impractical. *This motivates our study of algorithms in the IAC class.*”) (emphasis added.) IAC algorithms differ from the present invention in several respects. For example, IAC algorithms require interactions between a new candidate mobile and the network which result in significant delays before the mobile is admitted. The present invention does not require the same interactions and thus eliminates this delay.

Further, the Examiner’s rationale for the combination of Andersin and Rune is (1) “[t]his modification helps in estimating the contributions of the mobile to the uplink interference in the cells,” (See Final Office Action at p. 3.) and (2) “...a load function which is not depending on the transmit powers of said mobiles is used for a quick and easy solution.” (See Final Office Action at p. 11.) These conclusory assertions by the Examiner, alone, are not sufficient to establish a *prima facie* case of obviousness. Specifically, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. See *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Although a prior art device “may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.” 916 F.2d at 682, 16 USPQ2d at 1432.) Here, the Examiner has not provided any evidence in the prior art that suggests the desirability of the combination of Andersin with Rune. Moreover, considering Andersin in its entirety, it is clear that Andersin teaches away from the claimed invention.

In summary, Applicant submits that there is no motivation to combine Andersin with Rune. Therefore, Applicant respectfully submits that claims 1 and 11 are allowable. Claims 2-10 and 12-21 are dependent upon one of claims 1 or 11 and are allowable for at least that reason. Further, Korhonen, Kumaran and Jain fail to cure the deficiencies of Andersin and

Rune. Thus, Applicant respectfully requests the rejection under U.S.C. § 103 be withdrawn and claims 1-21 be allowed.

#### **New Claims**

Claim 21 has been added to further define the invention. Support for new claim 21 can be found at least on pages 8-22 of the specification. Further, new claim 21 depends from amended claim 1 and is therefore allowable for the reasons set forth above, without regard to the additional patentable limitations cited therein. Thus, Applicants respectfully request that new claim 21 be allowed.

#### **Conclusion**

Applicants submit that the application is in condition for allowance. An indication of the same is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance prosecution of the application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorize payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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